Original Article

MANAGEMENT OF INTRACEREBRAL HAEMORRHAGE: A COMPARATIVE STUDY OF SURGICAL VERSUS CONSERVATIVE TREATMENT

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ABSTRACT

OBJECTIVES: To see the outcome of surgical versus conservative treatment in the management of intracerebral haemorrhage.
SETTING: This study was carried out at neurosurgical unit in collaboration with medical units of Liaquat University Hospital Jamshoro / Hyderabad from Jan 1996 to Dec 2001.
METHODS: Overall 86 cases of intracerebral haematoma were included in this prospective study. The patients were divided in two groups . The first group included 32 cases which were operated, while the second group with 54 cases was managed with conservative treatment. Results were compared in both groups and morbidity or mortality was analysed in both groups. The cases of Aneurysmal bleedings and multiple haemorrhage were excluded.
RESULTS: The age of patients ranged between 36-65 years in first group and 52-78 years in second group. Majority of patients had intermediate (5-13) glasgow coma scale (GCS). The site, size of haematoma and causes were sorted out in some cases. Computerized tomography (C.T) Scan was observed as investigation of choice.
CONCLUSION: Conservative treatment was found better and had definite edge in management considering mortality of intracerebral haematoma. However, in those cases where surgery was indicated and performed, patients did improve rapidly with less neurological deficit and a useful productive and independent life than those managed on conservative treatment.

KEY WORDS: ***Haematoma, Intracerebral. Surgery. Conservative, Treatment.***

INTRODUCTION

Intracerebral haemorrhage is a serious illness with potentially fatal complications. The morbidity and mortality associated with this has remained high even in the presence of appropriate medical and surgical facilities. However, some reports show improvement in survival rates[1,2,3]. The most effective management is good physical cover and surgery in selected cases[4]. The operative management even remains controversial except certain strong indications. Bagley in 1932 first described the evacuation of haematoma for management and shared excellent results[4]. The same was reported by Lussen in 1967 considering surgery in these cases[1]. A prospective study was carried out from January 1996 to December 2001(6 years study) at Liaquat University Hospital Jamshoro / Hyderabad to look for surgical indications of intracerebral haematoma and effectiveness of medical treatment in marginal cases. This paper presents comparison of results of two types of management; medical versus surgical and derives inferences for an appropriate management for this critical problem.

METHODOLOGY

This prospective study was carried out at Neurosurgical unit in collaboration with medical units followed by follow up in outpatients department.
In all, there were 86 patients included in this study. The study was divided in two groups. Group I included 32 cases and these were managed surgically. In this group age range was 36 – 65 years and mean age was 50 years. In group II, in which 54 patients were managed medically, age ranged from 42-78 years with a mean age of 60 years. The level of consciousness was assessed according to Glasgow Coma Scale (GCS). Twenty three patients had GCS 13,18 had GCS 10 -12, 26 had GCS 7 -10 and 11 had GCS 5- 6. The main symptoms included restlessness 78 %, fever 72 % , vomiting 60 % and seizures 19 %. Almost all patients had deficit in the form of

hemiparesis or hemiplegia, some times with a similar deficit in arm or leg. Cases having temporal or basal haemorrhage were selected for surgery while high parietal or frontal haemorrhage or small haematomas were considered for medical management. In surgical group, 25/32 (78 %) patients had diabetes mellitus and 19/32(59.37%) patients were hypertensive at the time of admission, while 44/54 (81.48%)patients were diabetic and 39/54 (72.22%) patients were hypertensive in medical group. Almost all patients were diagnosed on C.T.Scan. In only four cases MRI was done. The size of haematoma in surgical cases measured 6-8 cm in larger diameter while in group II 7/54 cases had also same size of haematoma but majority had smaller size. Males 62/86 (72.09%) were more affected than females 24/86 (27.91%) with ratio of 2.58:1. Out of these 55(63.95 %) patients had right side haematoma and 31(36.04 %) had left cerebral haematoma. Out of surgical cases, 6 were directly admitted while 49 were shifted from medical units.

All patients underwent detailed clinical examination. Blood samples were drawn to have baseline levels of hemoglobin, blood sugar, serum electrolytes and Electro cardiogram. X-ray chest was done in selected cases. C.T Scan was basis in all cases while M.R.I in selected cases. On completion of work up, the particulars of patient, mode of presentation, pre treatment for diabetes / blood pressure , neurological status, positive findings on systemic examination, results of laboratory and radiological findings in terms of size, site, side, pressure effect and associated features were then recorded and analyzed. The predictors of poor outcome such as low GCS score, intraventicular rupture and uncontrolled diabetes / blood pressure were also registered.

For a short time (2-3 days) all patients were given steroids in low doses and antibiotics while in relevant cases antidiabetic and antihypertensive treatments were started. Some patients received anticonvulsants as well.

RESULTS

These were observed separately for the patients managed surgically or medically during this study.

Patients Managed Surgically (Group-I)

Out of 32 cases managed surgically, 23 (71.87) patients improved (71.87%) while 9(28.13%)expired. In surviving patients, observations were are shown in Table-1.

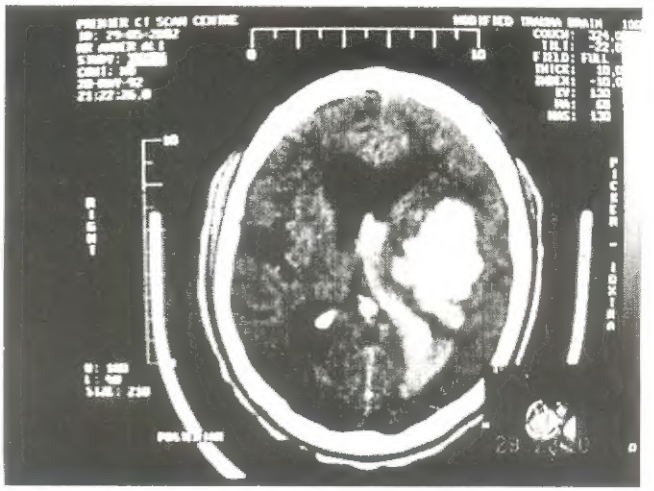

Fig. 1 Left cerebral haematoma with ventricular extension in a 45 years old person. Marginal case, both types of treatment can be considered.

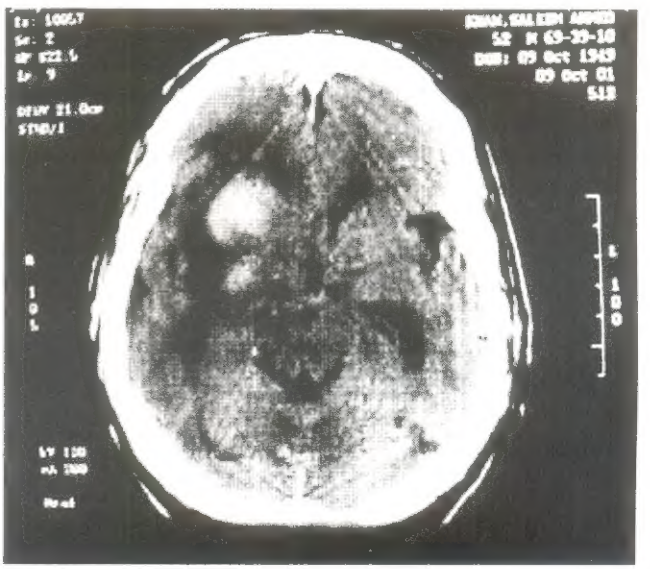

Fig. 2 Small 4 cm haematoma in 36 years old with 3mm midline shift managed conservatively.

TABLE – I SHOWING CHARACTERISTICS OF SURVIVORS IN GROUP-I

Clinical Presentation	No. of Patients	(%)
Residual complete hemiplegia	02	8.69
Dysphasia (left cerebrum)	04	17.39
Spasticity	07	30.43
Fits	09	39.13
Reduced higher mental function(Particularly memory)	02	8.37

Patients Managed on Conservative Treatment (Group-II)

Out of 54 cases managed conservatively survival rate was 42 (77.77%) i.e better than surgical cases. However there was big difference in time & rate of improvement and partial improvements in neurological deficits and an independent life Table-II.

TABLE-II SHOWING CHARACTERISTICS OF GROUP-II

Clinical Presentation	No. of Patients	(%)
Residual hemiplegia	09	16.66
Dysphasia	19	31.18
Spasticity	23	42.59
Fits	18	33.33
Reduced higher mental functions	08	14.81

DISCUSSION

The first line management for intracerebral haemorrhage is still a much debated subject. However a high index of medical treatment is expected and instituted as soon as possible , so that effective treatment can be decided with time progression. In selected cases with large haematoma (occupying 8-10% or more of supratentorial space), basal or polar haematoma causing midline shift of more than 4 mm and worsening neurological status, surgical intervention in collaboration of medical cover remains the corner stone of early and proper management for this condition. The diagnostic modality of choice is C.T. Scan which allows precise diagnosis and accurate pre-operative planning.Surgery is treatment par excellence for what can be termed medullary haematoma which are equivalent to lobar intracerebral haematomas[2]. In ganglionic intracerebral haematoma, surgery is beneficial only in rare cases without significant depression of sensorium and partial destruction of nuclear structures[2]. Surgery has shown better results in normotensives than in hypertensives and in those where progression was subacute rather than acute and devastating. Patients requiring artificial means to support blood pressure or respiration, have focal neurological deficits associated with rapid progressive deterioration of consciousness initially needed to be stabilized on medical regimens and should not be considered for surgery if medical contraindications particularly hypertensive over 50 years exists[5].

Surgical mortality has been reported higher among comatose patients, 54-77 %[2].

Japanese have faced this issue and have found that among patients who were alert, confused or somnolent, the results of treatment were good and differed little regardless of treatment modality[6,7]. For patients who were stuporous or semi-comatose without signs of herniation, surgical results were significantly better than medical. They also reported that majority of surgical survivors were left independent in activities of daily living, where as the medical survivors were left totally disabled in 11 out of 18 cases[5]. However an increased incidence of seizures (39.13%) was seen in operated as compared to 33.33% in un-operated cases. This could well be due to cortical trauma, concerning cerebellar haematoma. Majority of surgeons agree that operative treatment should be accomplished in the acute phase within 24 hrs to obtain good result. Regarding timing for surgery study shows that earlier the surgery is done in 24 hours better are the results, almost 80%. This coincides with reports of Penfield[3] and Ransoff [8]. Gradually results become poor by 24-48 hours .Bagely in 1932[4] suggested 2 weeks after the onset as the proper time. Last study by Kaneko in 1977[7] of surgery within 7 hours on 38 patients reported improvement in 31.57% patients and only 3 patients died i-e mortality was 7.89%. Papo in 1980[2] and Pia[5] in their studies deduced that operating hypertensive patient with haematoma during first day has no effect and has been completely abandoned in Europe.

CONCLUSION

Controversy in managing intracerebral hemorrhage is infact an interesting & improving aspect of this serious problem. Other well controlled studies are required for universal decision on this issue. Medical regime equipped with steroids, intracranial pressure (ICP) monitoring and reduction in osmotic agents, control of diabetes, hypertension and fibrinolytics are first and preferred modes of treatment, even by neurosurgeons. However, for improved outcome following points should be considered.

Indications for Surgery

(i). If haematoma is lobar then better treatment can be surgical removal.

(ii). If hemorrhage is ganglionic and through sylvian fissure, however, if associated with ventricular extension surgery should be avoided.

(iii). If 8-12 % of supratentorial space is occupied by haematoma with clinical unstability or deterioration, surgery should not be delayed . If it is more than 12%, then surgical results may be poor.

(iv). In such patients, the stronger indication for surgery is altered level of consciousness and

deteriorating neurological status despite maximum medical therapy.

(v). Posterior fossa haematomas usually need immediate removal.

(vi). Haematoma causing midline shift of more than 4-6 mm should be seen from surgical aspect.

Relative Contraindications of Surgery[2,8]

i) Patient requiring artificial means to support blood pressure or respiration.

ii) Have focal neurological deficits associated with rapid progressive deterioration of consciousness.

iii) Need to be stabilized on medical regimens.

iv) Have medical contraindication for surgery particularly hypertensives aged above 50 years[5].

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